DOCUMENT RESUME

ED 284 000 CE 047 706

AUTHOR Eash, Maurice J.; Fitzgerald, Ronald J.
TITLE Occupational Education and Industrial Policy: Revitalizing the United States Economy. Occasional Paper 1.10.
INSTITUTION Massachusetts Univ., Boston. Inst. for Learning and Teaching.
PUB DATE Feb 87
NOTE 16p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Basic Skills; *Economic Progress; Economics; Human Capital; *International Trade; *Labor Force Development; Management Development; Postsecondary Education; Public Policy; *Role of Education; Secondary Education; *Vocational Education; World Affairs
IDENTIFIERS *Human Systems Approach; *Industrial Policy

ABSTRACT

The current United States industrial policy is not working in the new international economy. As jobs are increasingly exported overseas, the United States faces a major problem in revitalization of its economy. Occupational education has a major role in the revitalization of the country's economy through the upgrading of the training and retraining of a more productive work force. Two areas where occupational education curriculum can directly contribute to build a new competitive economy are through increasing achievement in basic skills and through instruction of students in understanding and use of human systems innovation in work environments. Development of human capital is the critical factor in rebuilding a competitive economy. (Author/YLB)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED284000

Center for Industrial Policy
and Occupational Education

# Occupational Education and Industrial Policy:

## Revitalizing the United States Economy

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

M J Eash

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Institute for Learning and Teaching
University of Massachusetts, Boston

CE047706

OCCASIONAL PAPER 1.10

Prepared by: Maurice J. Eash; University of Massachusetts, Boston
Ronald J. Fitzgerald; Minuteman Technical School, Lexington, Massachusetts

BEST COPY AVAILABLE

**Occupational Education and Industrial Policy:**

**Revitalizing the United States Economy**

Maurice J. Eash
University of Massachusetts at Boston

Ronald J. Fitzgerald
Minuteman Regional Vocational
Technical School District
Lexington, Massachusetts

Occasional paper 1.10, issued by the Center for Industrial Policy and Occupational Education, Institute for Learning and Teaching, University of Massachusetts at Boston.

February, 1987.

**Acknowledgments**

The authors wish to acknowledge Professor Sumer Aggarwal for his helpful comments on an earlier draft of the paper and Dr. Edward Doyle for his assistance in editing the final version of the paper. The Division of Occupational Education of the Commonwealth of Massachusetts offered valuable interest and encouragement in the formulation and writing. While this paper owes its existence to their support at critical junctures, its issuance does not imply their endorsement of the themes and opinions. These along with any errors are the sole responsibility of the authors.

MJE
RJF
February 1987

**The Authors**

Maurice J. Eash is the Director of the Institute for Learning and Teaching at the University of Massachusetts at Boston. He has served as a professor at five major mid western and eastern universities and is the author of over 100 publications on evaluation, curriculum and instruction and social policy. His research specializations are evaluation research and program design. He holds the doctorate from Columbia University in New York.

Ronald J. Fitzgerald is Superintendent-Director of Minuteman Regional Vocational-Technical School District, Lexington, Massachusetts. He has served as a high school science teacher, superintendent of schools at Amherst, Massachusetts and Director of Research of the Massachusetts Advisory Council on Education. Curently, he serves as a member of the Advisory Board of the Center for Industrial Policy and Occupational Education. He holds the doctorate from University of Massachusetts at Amherst.

**Occupational Education and Industrial Policy:**

**Revitalizing the United States Economy**

The purpose of this paper is to document that the current United States industrial policy is not working in the new international economy. Increasingly, jobs are exported overseas and the United States faces a major problem in revitalization of its economy. Occupational education has a major role in the revitalization of the country's economy through the upgrading of the training and retraining of a more productive work force. Two areas where Occupational Education curriculum can directly contribute to build a new competitive economy are through increasing achievement in basic skills and instruction of students in understanding and use of human systems innovation in work environments. Development of human capital is the critical factor in rebuilding a competitive economy.

The development of a coherent industrial policy is essential to the success of a nation in the world marketplace. Coordinated industrial policies are the invisible hand that shapes the newly interdependent world economy and determines the resultant standard of living among each nation's citizens. Determined and implemented by a national government, industrial policies represent a strategic plan for a nation's future. In this plan, there are three main components which require critical, integrated decision making:

- capital accumulation - the retention and reinvestment of earnings by industries and tax policy that encourages individual savings.
- capital allocation - the funneling of capital to targeted industries or services through direct loans and favorable tax treatment.
- training and retraining a labor force - the support of an occupational based curriculum for students, and worker retraining for new technology and job displacement.

Occupational education* has played a prominent role in the provision of skilled labor in the United States for over eighty years. Industrial policy in the past has largely been an outgrowth of demand for capital and labor in an internally oriented free market. However, in the past fifteen years the changes in industrial policy by some of the world's leading technological powers, chiefly Japan and Germany, and the development of information systems that rapidly move capital across national borders, have initiated a new set of rules that can determine a nation's success in the increasingly competitive world-based economy.

In particular, the economic status of the United States has changed radically in this new era of national economic policies that are centrally determined and managed. Yet, we have been slow to recognize the potential threat they pose to the United States economic leadership. In all three components of industrial policy: capital accumulation, capital allocation, and training and retraining a labor force, we have not forumulated national policies that can address economic problems or design curriculum in occupational education necessary for restructuring the United States' work force.

Recent evidence suggests we are losing the lead in high technology and have lost the lead in manufacturing and mass-produced consumer goods. Economic and industrial statistics reflect these changes, but because of the United States' decentralized economic policy, overall national strategies to respond to these are not well formulated. Some of the more salient facts on these major economic shifts taking place in the United States are:

---

*By occupational education, we include vocational education at its many levels as well as training and retraining efforts in business and industry and labor unions.

- Eleven and one-half million American workers lost jobs over the five years, 1979-84, because of plant shut-downs, relocations, rising productivity or shrinking demand.
- One-half of the workers who lost jobs in the last five years worked in manufacturing industries hard hit by international competition, chiefly steel, autos, electronics, chemicals, appliances, and textiles.
- Unskilled and semi-skilled workers who have been displaced by the closing of durable and non-durable goods manufacturing, are often reduced to employment with sharply lower wages and benefits.
- Middle income wage earners have suffered a drop in family income since 1970 due to changes in the types of jobs available to them in the American economy. A principal reason for this income decline in the last decade and a half is that 94% of the newly created jobs (non-agricultural) are in service industries that typically pay 30% to 70% of the manufacturing wage.
- Of the new jobs created in the last five years, 80% of the new hires have been women in low-wage service industries.
- There is no sign that the trend of exporting durable and non-durable goods manufacturing to low-wage rate countries is slackening, and a major restructuring of the employment market in the United States has already taken place. Worker displacement which will probably occur several times in a working life, is accelerating as technological changes and international competition intensify.
- Severe regional unemployment affects blue collar workers in heavy industries in the Middle West and the Northeast while severe labor shortages affect technology and information-based industries on the East and West coasts.

- The displaced workers, especially from the manufacturing industries, are those most likely to lack basic skills of reading, writing, mathematics, problem solving, and communication. Those with such deficiencies are also most likely to resist remedial education programs due to lack of self-confidence and low success in previous formal education.
- Long term under-employment and unemployment has become endemic in large sectors of the United States economy. It is somewhat disguised when compared to previous long-term unemployment cycles by the cushions of unemployment benefits, retraining programs, short-term marginal jobs and employment of other members of the family. (1)

As a result of these alarming changes, the United States economy may no longer be able to support the majority of its citizens at a record high standrd of living. An economic machine that forty years ago stood unchallenged now finds itself confronted by international competitors its equal in quality mass-produced consumer products and more importantly able to draw upon a large pool of cheap labor. Consequently, many Americans who had come to expect an ever rising standard of living now must either run harder simply to stay in place or endure a steady slide in income. (2) Unpleasant as it is to face, the United States is being battered in the world markets with devastating impact on the standard of living of many of its citizens. The shift from unchallenged world leader to floundering competitor is well documented by the following economic indicators:

- a widening foreign trade deficit
- greater long term unemployment
- an increase in bank failures
- a lengthening list of collapsing industries

— a burgeoning national debt that heavily mortgages the future of oncoming generations.

Can we reverse those trends? Three options appear open. The first option is to accept the situation and let the current trends continue. Many in the population will enjoy a plethora of cheap consumer goods but at the expense of an equally large number who will struggle to maintain a subsistence living. Living standards for most will inevitably decline. We only need to look at the plight of Great Britain to see a case of failed industrial policies and a subsequent decline of a national standard of living. Ultimately, as economic opportunity and living standards decline, social pathology consisting of crime, drug abuse and other assorted human misery will increase.

A second option and one growing in popular favor is to adopt a strong trade protectionist position and close our markets to cheap foreign goods and withdraw into an economic fortress America. Upon closer inspection, this protectionist path can only lead to economic failure and a lowered standard of living. Notwithstanding the fact that we are economically linked to other nations, unilateral action on restrictive tarriffs would trigger a massive trade war of retaliatory barriers sparking a 1920's style depression with attendant widespread hardship and political upheavel. (3)

The third option, and one that has the most potential, is to develop explicit industrial policies that can replace our current economic approaches and restore the United States' competitiveness in world markets. Clearly, we need more efficiency in every realm of the economy if we are to have internationally competitive industries and services. In effect, economic winners are those countries who plan and organize at a national level, direct capital to growth industries, promote capital accumulation through fiscal and monetary policy and organize their human resources through training and retraining programs.

World leadership for national and personal security means more than military might, especially in a climate where mutually assured destruction is the norm for the most powerful, and indiscriminate terrorist strikes are visited on the unsuspecting by the militarily impotent. A state of economic well being and a way of life which provides basic economic guarantees and opportunities for individual advancement provides a common bond and ideal for most of the world's citizens. Since its founding, the United States especially has fostered this ideal. Can we mobilize ourselves to respond to the current challenge to our way of life and economic leadership? In addressing the need for economic innovations, we believe that occupational education can be a significant factor in an industrial policy that addresses a number of the deficiencies that erode the capabilities of the United States' economy to be competitive.

Foremost in economic changes needed is the upgrading of management in the workplace. Compared to its foremost rival, Japan, United States industry and business is being out-managed in its capability to do strategic planning, implement and organize technical resources, and motivate a workforce. We have been prone to explain away Japanese superiority with myths of government indulgence, monopolistic business, unfair trade practices and low wage rates. (4) The real facts are that they have developed more effective front-end industrial policies that build heavily upon the component of a trained, flexible work force. How crucial is this? Lester C. Thurow states, "In the long run, a loyal well motivated high quality labor force interested in the success of the company is the only permanent comparative advantage a company can acquire. Everything else--technology, better equipment, natural resources--can be brought in the open market place. A high-quality economic team in contrast is something that money cannot buy. It must be created." (5)

If much of our comparative disadvantage lies in our human resources foundation, occupational educators have both an opportunity and responsibility to help develop a skilled and flexible work force, one that can serve as the basis of national economic renewal. An analysis of United States industry and its work force reveals a series of problems that can be remedied through reconstruction of curriculum. We offer two suggestions on where the reconstruction process might begin.

First and foremost is the need to pay more attention to the occupation education curriculum in order to upgrade the basic achievement of students prior to graduating into the work force. On a comparative basis, United States educational achievement does not fare well in comparison to that of the Northern Europeans and Japanese. (6) In specific areas, such as mathematics, we are especially low. (7) (8) It is not only that achievement is dropping, but the rising demands placed on a skilled work force raises the standard of achievement needed. Moreover, the ability of a work force to seek and profit from retraining is directly related to basic literacy skills. (9) How low are our literacy skills? A recent study found that 20% of adults in a national population sample could not perform above an eighth grade level in reading comprehension. (10) There is reason to believe, given modern job requirements, that as many as 50% of the population are unable to comprehend in reading or perform required measurement skills at the 12th grade level.

How do we tackle the problem? Considerable research suggests that occupational education should be a prime place to teach basic skills in a meaningful context. (11) A first step would be a fine grained curriculum analysis of reading and mathematics skills needed on a course and project basis and subsequent attention to evaluation to see if these are taught correlatively to the

subject instruction. Undoubtedly, in-service training of occupational education faculty is needed to accompany a renewed emphasis on basic skills.

Another area of program reconstruction is management training for students in human systems innovation. Crucial to cutting labor costs and making high quality products is a highly motivated labor force that associates its well being and advancement with its organization. In employing human systems innovation (a short hand description for social and psychological processes that unites external activity with psychic satisfactions in the individual), we have a long way to go in creating school climates that facilitate these processes. Salient variables in these improved climates are: more focus on ethical behavior, a diminution of greed and selfishness, and more compassionate and humane consideration of others.

We have, however, acquired some research insights that can provide direction. Among the most significant are: the need for shared information, establishment of mutual goals, development and use of decision making strategies that bring individual interest into congruence with an organization goals. (12) These changes in ways to manage work whether it be as a teacher/student, principal/teacher or forman/worker, chief executive officer/staff require reorganization of roles and a different perspective on use of time, e.g., more time expended on planning and organization of work. What is most difficult will be a change in status arrangements among those in the work place. For human systems innovation does not seem to function without these status changes. (13)

Occupational education, with its teaching stations embedded in the proximate work environment, has a special advantage in initiating youth to the kinds of management style that is a key to an efficient economy. If we cannot improve our organizational functioning in business, labor, service-information, and government, then it seems we are destined to further slippage in the

economy. Our productivity is made up of many factors and human systems innovation takes these psychological demands into the reorganization of work whether it be through job rotation, job enlargement, enrichment, semi-autonomous groups, quality control circles, and these all emphasize worker participation, dignity and contribution to a common goal. (14)

In a fragmented way, classroom organization and pedagogy for many years emphasized ways of engaging student participation in the learning process. (15) In our view, the occupational education classroom can impart the management skills necessary for a revitalized industrial society on a daily basis as students engage a curriculum that builds efficient work habits and trains the effective leadership necessary in an economically competetive labor force.

Basic academic skills are fundamental to human systems innovation. Equally important are general problem solving skills, human relations understandings, ability to organize and direct team projects, and engage shared interests in mutual problem solving. These skills along with respect for data based evaluation of progress must inform the instructional technology in the classroom oriented to human systems innovation.

To make occupational education programs active partners in building a competitive national economy demands reallocation of resources and increased funding from the Federal and State governments. Four areas call for immediate attention:

1. seminars and leadership training programs are needed to ensure that all public school officials understand the potential of teaching basic skills in an occupational context;
2. development of curriculum materials that assist teachers in:

a. incorporating the productivity management principles of human systems innovation in the occupational curriculum for all high school students;

b. integrating academic subjects and vocational education;

3. redesign of undergraduate and graduate education programs to facilitate development, adoption and use of new curriculum materials and instructional technology;

4. financial support for university centers that can promote coordintion of curriculum development, and research for: public education, job training and employment agencies, labor unions, apprenticeship education, and private industry education efforts.

A viable industrial policy coaleses the shared experiences, needs and ideals of a citizenry. As a national strategy, it sets goals and tactics and allocates resource to maintain and enhance the economic welfare of the people. In a revolutionary era of world economics, it is a critical factor to the well being of all Americans and the future of our economic system. For too long the United States has lagged behind its competitors in coordinating industrial policy and work place practice. Occupation education, because it bridges the classroom and the world of work, is in a unique position to play a significant role in providing education for the new work force needed to revitalize the United States economy, enable it to compete abroad, and thus preserve a quality life for all citizens.

## Notes

1. For further analysis of these trends see Technology and Structural Unemployment: Reemploying Displaced Adults. U.S. Congress, Office of Technology Assessment. OTA-ITE-250. Washington, D.C.: U. S. Government Printing Office, February, 1986.

2. "Average Weekly Earnings Down 14.3% Since 1973." New York Times, July 13, 1986, p. F1.

3. Chandler, Lester W. America's Greatest Depression 1929-1941. Harper & Row: New York, 1970.

4. Holden, Constance, "New Toyota--GM Plant in U. S. Model for Japanese Management," Science Vol. 233, p. 273-7, July 18, 1986.

5. Thurow, Lester, C. The Zero Sum Solution: Building a World-Class American Economy. Simon & Schuster: New York, 1985, p. 178.

6. Lerner, Barbara, "American Education: How Are We Doing." Public Interest 69, Fall 1982, pp. 869-81.

7. "American Students Score Average or Below in International Math Exams," New York Times. September 23, 1984, p. 30.

8. Stevenson, Harold, Lee Shin-Ying and James W. Stigler, "Mathematics Achievement of Chinese, Japanese, and American Children." Science, Vol. 231, pp. 693/703, February 14, 1986.

9. Eash, Maurice, Dingel, L., Hung, S. "Development and Testing a Model for Manpower Assessment and Placement of Unemployed Workers." Resources in Education, August, 1984. ERIC Document Reproduction Service ED243 365.

10. Literacy: Profiles of America's Young Adults National Assessment of Educational Progress, Educational Testing Service, Princeton, NJ 1986.

11. Walberg, Herbert J. "Synthesis of Research on Teaching," in Merlin C. Wittrock (ed), Handbook of Research on Teaching. 3rd Edition 1986, pp. 214/229.

12. Johnson, David W., Maruyama G., Johnson, R., Skon, L., "Effects of Cooperative, Comperative, Competitive and Individualistic Goal Structures on Achievement: A Meta-Analysis." Psychological Bulletin. 89, pp. 47/62, 1981.

13. Simpson, Richard L. "Social Control of Occupations and Work," in Ralph H. Turner (ed), Annual Review of Sociology James F. Short, Jr. (Assoc. Ed.) pp. 415/436, Vol. 11, 1985, Palo Alto: Annual Reviews Inc.

14. "American Do It Mazda's Way," New York Times, October 29, 1986, p. D-8.

15. Doyle, Walter, "Classroom Organization and Management," in Merlin C. Wittrock (ed), Handbook of Research on Teaching. pp. 392/431, 3rd Edition, 1986, pp. 392/431, New York: MacMillan.